



INSTITUTE OF AGRICULTURAL ECONOMICS, BELGRADE, SERBIA

SUSTAINABLE AGRICULTURE AND RURAL DEVELOPMENT IV

Book of Abstracts



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PHYTOREMEDIATION AND ELECTROKINETIC SOIL REMEDIATION

Vladimir Miladinović¹, Vladan Ugrenović², Mira Milinković³

Abstract

An efficient and sustainable way of removing organic and inorganic pollutants from soil using plants is possible through the biotechnological process of phytoremediation. Depending on the type of pollutant, degree of pollution and environmental conditions, there are several mechanisms of phytoremediation, such as: phytodegradation, phytoaccumulation, phytostabilization, rhizodegradation and rhizofiltration.

The application of phytoremediation is not expensive, it can be applied on large areas and does not lead to soil damage. The disadvantage of this application is the potential shelf life of the process, as the development of the plants is monitored in one or more years. Also, the removal of pollutants from the soil is carried out in the depth zone of the plant's root system, which is directly affected by the physical and chemical properties of the soil and the pollutant itself.

The method of improvement is the application of the phytoremediation process in combination with electrokinetics. The application of electrokinetics is the use of low-intensity electric current using electrodes (anode and cathode), in the immediate vicinity of plant roots and the creation of an electric field. The result is greater mobility and bioavailability of pollutants, which is a consequence of the processes of electroosmosis and electromigration. As the bioavailability of pollutants in the soil increases, the efficiency of the phytoremediation process also increases. AC or DC currents and different voltage levels can be used.

Key words: *Phytoremediation, electrokinetic remediation, soil pollutants.*

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